

V. QUEEN CREEK IRRIGATION DISTRICT

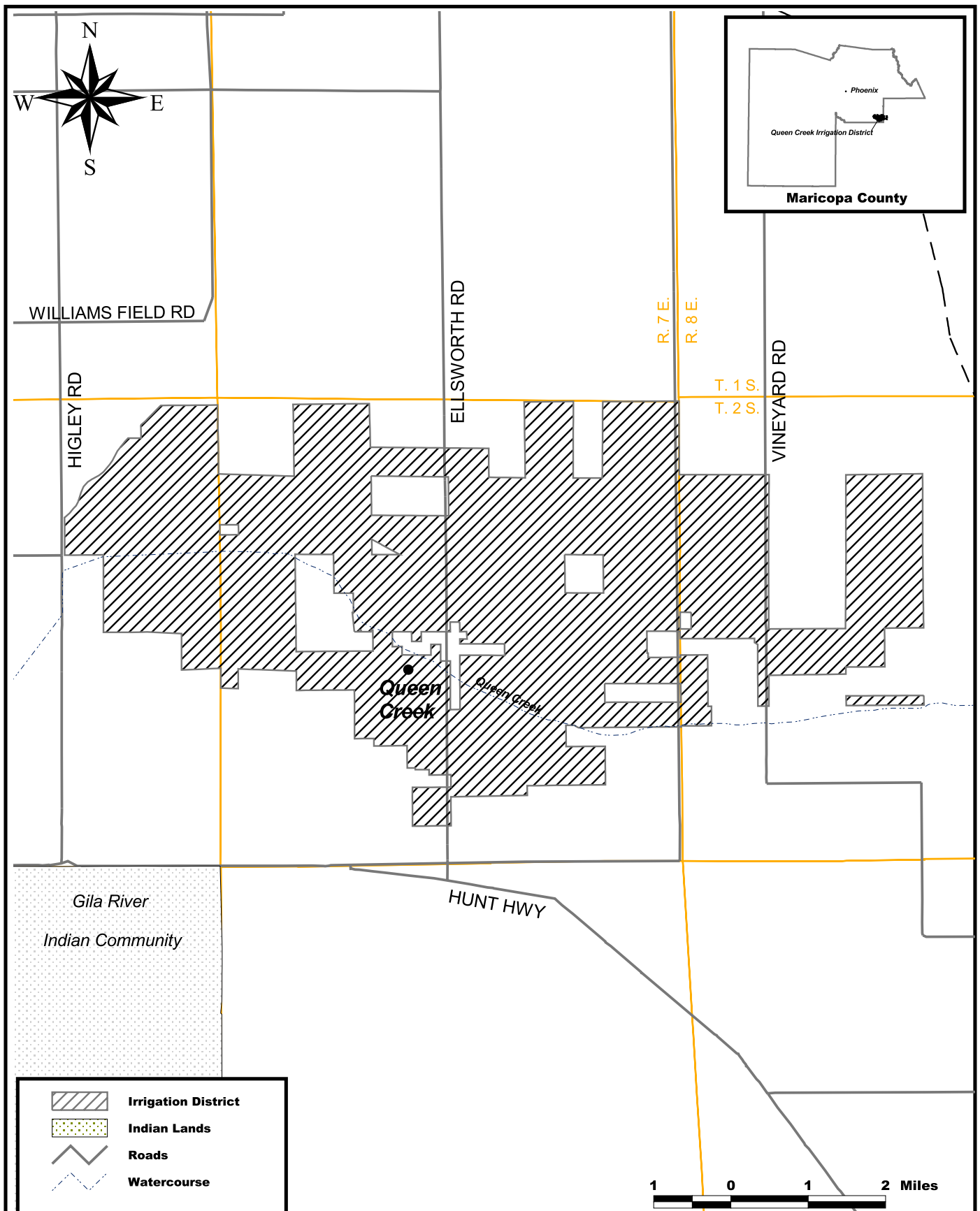
The Queen Creek Irrigation District (QCID) was organized in 1923 and is located in southwestern Maricopa County approximately 12 miles southeast of Mesa, as shown on Figure L-NIA-10. It was originally organized to obtain electrical power to operate pumps, which it continues to do through a contract with the Salt River Project. The district distribution system was completed in August 1989.

In the QCID service area in 1998, a total of 43,180 af of water was produced and delivered. Of that total, 43,180 af were derived from CAP deliveries.

V.A. CAP Water Allocation History

The QCID entered into a contract with the United States and CAWCD for 4.83 percent of the available NIA pool, effective October 1, 1993. Had the 1992 NIA reallocation process been completed, QCID's percentage of the available NIA pool would not have increased. In late 1993, QCID entered into a two-party letter agreement with CAWCD under which QCID and CAWCD "mutually agreed to waive certain rights and obligations under the Water Service Subcontract." The United States is challenging these agreements in ongoing litigation regarding operation of the CAP. Nevertheless, NMIDD has contracted for CAP water pursuant to this agreement from the Ag Pools on an annual basis and at a rate reduced from the original contract requirements.

Under the Settlement Alternative, QCID would voluntarily relinquish its allocation of CAP water in exchange primarily for debt relief and access to affordably priced CAP Ag Pool water for the next 30 years (see Chapter II for full description of all alternatives). Under all of the alternatives, QCID would not receive an additional allocation. It should be noted that, even without an allocation, CAP water will continue to be available to QCID from the Ag Pool, which is comprised of excess water. Under the Settlement Alternative, QCID would receive 2.91 percent of the Ag Pool; under all other alternatives, QCID would receive 7.8 percent of the Ag Pool. Table L-NIA-18 outlines the proposed CAP allocation by alternative.



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CAP Allocation Draft EIS **General Location Map** **Queen Creek Irrigation District**

Figure #L-NIA-10

Table L-NIA-18 CAP Allocation Draft EIS QCID – Proposed Additional CAP Allocation		
Alternative	Additional Allocation^a (in afa)	Priority
Settlement Alternative	0	-
No Action	0	-
Non-Settlement Alternative 1	0	-
Non-Settlement Alternative 2	0	-
Non-Settlement Alternative 3A	3,396 ^b	NIA
Non-Settlement Alternative 3B	19,221 ^(b)	-
Existing CAP Allocation	0 ^c	NIA
Notes: ^(a) All NIA allocations are percentages of the available NIA CAP water supply. They are converted to fixed af amounts only for ease of calculation in the draft EIS. See Appendix B for the calculation of NIA allocation numbers. ^(b) Based on 4.83 percent of the available NIA CAP water supply. The status of this allocation is in dispute.		

V.B. Water Demand and Supply Quantities

QCID consists of 19,161 CAP-eligible acres and 585 acres of CAP excess land. No new net acreage can be brought into production as a result of the 1980 GMA. Currently, QCID uses approximately 45,614 afa of CAP water, of which 10,307 afa are provided as in-lieu groundwater recharge. This water use pattern could change if acreage is taken out of production due to economic reasons or urbanization. Reductions in total water use reflect reductions in farmed acres due to water costs or the lack of access of CAP water.

In order to estimate impacts for the next 50 years, assumptions were made regarding the availability and pricing of CAP water for each alternative. These assumptions are fully described in Appendix A, Background Assumptions. Using the CAP water availability as a base, a model was developed (as described in Appendix D, Socioeconomic Analysis) to project water use and the number of cropped acres based on economic decisions. For example, the economic model predicts whether or not a certain wheat will be grown based on the marginal costs of growing wheat given the prices and availability of water. The water uses projected by the economic model were incorporated into the groundwater model to verify QCID's ability to pump and afford the projected groundwater to be used. Acreage was also decreased based on urbanization due to population growth.

V.C. Specific Construction-Related Impacts

No new water delivery facilities would be required with one exception. Under the Settlement Alternative, RRA restrictions may be lifted and QCID may desire to build new facilities to deliver CAP water to previously ineligible lands. This possibility is considered speculative at this time and is beyond the scope of this EIS.

V.D. Environmental Effects

Since construction of water delivery facilities would not likely be required, the primary environmental impacts to QCID would result from the availability of CAP water and its cost, under the different alternatives.

V.D.1. Land Use

Table L-NIA-19 shows the land use pattern for years 2001 to 2051 within the QCID area. Approximately 3,900 acres are projected to be urbanized over the study period. Additionally, approximately 7,000 acres are fallowed due to farming economics. The timing of the acreage fallowed varies by alternative and is tied to the size of the retired acreage and the CAP Ag Pool.

Table L-NIA-19
CAP Allocation Draft EIS
QCID– Projected Agricultural Land Use
(Acres)

Alternative	Year	Land Farmed	Land Urbanized Per Time Step	Land Fallowed Due to Economic Reasons per Time Step
Settlement Alternative	2001	15,259	0	0
	2004	11,012	1,093	3,154
	2017	10,097	915	0
	2030	9,182	915	0
	2043	4,831	504	3,847
	2051	4,382	449	0
No Action	2001	15,259	0	0
	2004	11,012	1,093	3,154
	2017	10,097	915	0
	2030	9,182	915	3,847
	2043	4,831	504	0
	2051	4,382	449	0
Non-Settlement Alternative 1	2001	15,259	0	0
	2004	11,012	1,093	3,154
	2017	10,097	915	3,847
	2030	9,182	915	0
	2043	4,831	504	0
	2051	4,382	449	0
Non-Settlement Alternative 2	2001	15,259	0	0
	2004	11,012	1,093	0
	2017	10,097	915	3,154
	2030	9,182	915	5,449
	2043	4,831	504	0
	2051	4,382	449	3,847
Non-Settlement Alternative 3A	2001	15,259	0	0
	2004	11,012	1,093	0
	2017	10,097	915	3,154
	2030	9,182	915	0
	2043	4,831	504	3,847
	2051	4,382	449	0
Non-Settlement Alternative 3B	2001	15,259	0	0
	2004	11,012	1,093	0
	2017	10,097	915	3,154
	2030	9,182	915	0
	2043	4,831	504	3,847
	2051	4,382	449	0

V.D.2. Archaeological Resources

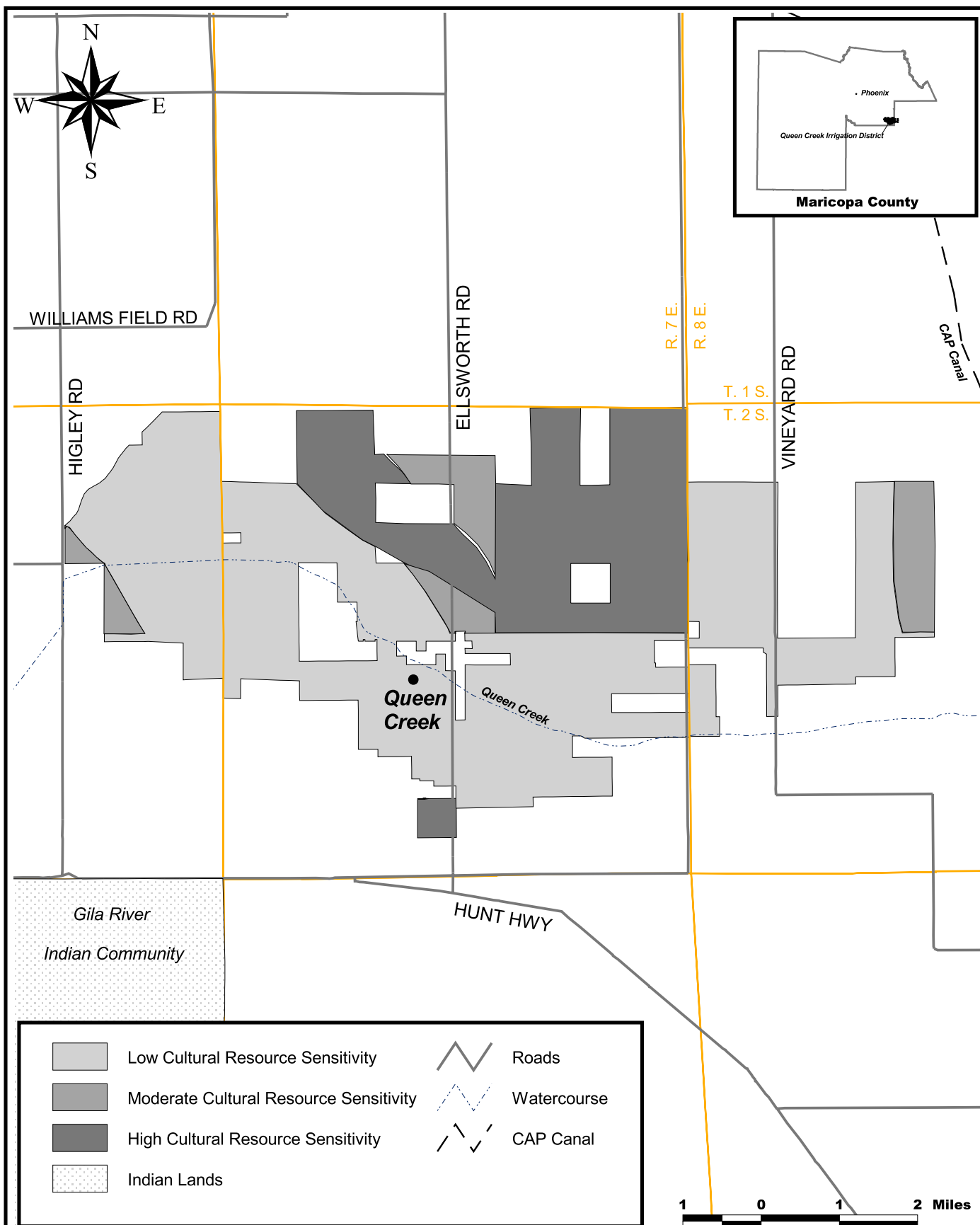
Less than one-third of this entity has been surveyed, with linear surveys comprising approximately 75 percent of the area examined. Most surveys have been negative, although numerous sites were documented in the northern half of the entity by various surveys associated with Reclamation's Salt-Gila Aqueduct – CAP (e.g., Stein 1979; Marmaduke et al. 1985). This area of high cultural resource sensitivity includes Hohokam artifact scatters—some including mounds, ranging from the Sedentary to the Classic periods (e.g., the Southwest Germann Site; Las Ollas Oriente), as well as architectural sites recorded by Omar Turney, Frank Midvale, and others (e.g., Rittenhouse Ruins) during the 1930s and 1940s. Given the rate of development that has occurred in this area since then, it is likely that some of these sites are no longer visible; however, intact subsurface deposits are still possible below the plow zone. It is also likely that surface remains—such as field houses, canals, and other agricultural features—associated with some of the larger sites might be present in the surrounding areas. A second, smaller parcel in the south half of the entity also is classified as an area of high cultural resource sensitivity, as it encompasses two large Hohokam architectural sites, Sonoquit Pueblo and Pozps de Sonoqui. Areas of moderate sensitivity contain small, dispersed artifact scatters or border areas of high sensitivity, such as the archaeology-rich landscape around the CAP canal. Historic resources that might be present throughout the entity include homesteads, orchards, roads, canals, and railroad features. It is not known whether this entity has a local historic preservation program. Cultural resource sensitivity areas in this entity are shown in Figure L-NIA-11. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in this entity is high to moderate. Urbanization of farmlands could impact any intact cultural/deposits that might be preserved below the plow zone. Mitigation for these potential impacts would be determined by local jurisdictions. No impacts to cultural resources are expected from land fallowing.

V.D.3. Biological Resources

Table L-NIA-19 shows land use over the period of study by alternative. Land stays in agricultural production or is converted to urban uses or fallowed. The change in land use will result in two possible effects on biological resources. If conversion of agricultural lands to urban use occurs, loss of natural habitat or wildlife is minimal. However, adjacent lands may contain wildlife that might be impacted such as burrowing owls, nests of local birds, and habitat for small mammals. If conversion of agricultural lands to fallow fields occurs, the period of time the land is left fallow will vary. Through natural revegetation processes, these fallow fields can provide fair wildlife habitat in the long term. Reclamation with natural vegetation can enhance this process if these fields will not be developed in the future. Fallow fields often become areas of potential dispersal for noxious weeds.

V.D.4. Water Resources

QCID has met historical irrigation demands using groundwater, supplemented in later years with CAP water. Groundwater levels have declined historically in response to the groundwater pumping, and a groundwater level depression is located in the vicinity of QCID. The TDS concentration of groundwater ranges generally from about 500 to 1,000 ppm. This area has experienced subsidence historically, due to the groundwater level declines.



**CAP Allocation Draft EIS
Cultural Resources
Queen Creek Irrigation District**

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Figure #L-NIA-11

Presented in Table L-NIA-20 are estimated changes in groundwater levels from 2001 to 2051, and estimated groundwater level impacts for each alternative. Under the No Action Alternative, groundwater levels rise by about 44 feet through about 2051. This rise in groundwater levels reflects the interplay of a number of factors, including urbanization and changes in irrigated acreage in QCID due to economic considerations. The rise in groundwater levels would likely cause a reduction in pumping costs. The rise in groundwater levels would tend to eliminate subsidence. Also, the groundwater level rise in this area would eliminate the current local groundwater depression, which would tend to improve groundwater quality.

Groundwater levels in year 2051 under the Settlement Alternative and all Non-Settlement Alternatives would be lower than under the No Action Alternative, except for Alternative 1. As with the No Action Alternative, these groundwater levels reflect a number of different factors in the vicinity of QCID, including urbanization and changes in irrigated acres due to economic considerations. There would be the potential for subsidence under the Settlement Alternative and Non-Settlement Alternatives 2 and 3A, due to the lower groundwater levels. There would also be the potential for adverse groundwater quality impacts under the Settlement Alternative, as a groundwater level depression would remain in the vicinity of QCID.

Table L-NIA-20 CAP Allocation Draft EIS QCID– Groundwater Data Table		
Alternative	QCID*	
	Estimated Groundwater Level Change from 2001-2051 (in feet)	Groundwater Level Impact** (in feet)
No Action	44	--
Settlement Alternative	-18	-62
Non-Settlement Alternative 1	53	8
Non-Settlement Alternative 2	-31	-75
Non-Settlement Alternative 3A	-27	-71
Non-Settlement Alternative 3B	+1	-44
* Values correspond to the QCID sub-area. ** Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.		

V.D.5. Socioeconomic

Table L-NIA-21 shows the estimated lost agricultural gross revenues over the 50-year study period resulting from the fallowing of approximately 17,000 acres, the timing of which varies by alternative. For more information regarding impacts of CAP water reallocation on NIA districts, refer to Appendix D of this publication.

Table L-NIA-21	
CAP Allocation Draft EIS	
QCIDD Estimated Lost Gross Agricultural Revenues 2001-2051 (\$)	
Alternative	Lost Gross Revenues 2001-2051
Settlement Alternative	238,999,360
No Action	61,724,600
Non-Settlement Alternative 1	85,397,690
Non-Settlement Alternative 2	148,607,438
Non-Settlement Alternative 3A	171,227,798
Non-Settlement Alternative 3B	148,607,438